SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of the degree of Barchelor (Hons.) of Civil Engineering

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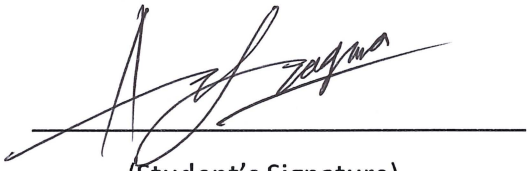
Date : 19th June 2017

STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at University Malaysia Pahang or any other institutions.



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EFFECT OF RIVER MORPHOLOGY IN SUNGAI JEMBERAU AT TASIK CHINI DUE TO UPLAND ACTIVITIES

ABDUL RAZAK BIN MOHAMAD GHAZI

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ABSTRAK

Satu kajian mengenai morfologi sungai telah dijalankan di Sungai Jemberau, Pahang. Kajian ini tertumpu kepada perubahan morfologi sungai dengan menentukan masalah berdasarkan perubahan morfologi di lokasi tertentu untuk mentafsirkan faktor yang menyebabkan perubahan sungai pada setiap peringkat morfologi. Beberapa pendekatan telah digunakan dalam kajian ini. Pertama, ia melibatkan fasa kajian perancangan dan pembacaan dari sumber bertulis. Kedua, ia adalah satu pendekatan yang digunakan untuk pengumpulan data dan maklumat diikuti oleh pelaksanaan teknik pembelajaran. Kawasan kajian adalah salah satu sungai yang mengalir air ke kawasan tadahan Tasik Chini. Keputusan yang dijangkakan untuk perubahan morfologi dikumpul dan analisis dari peta Google Earth. Dari peta Google Earth, perubahan sungai boleh dilihat bermula daripada tahun 2011 sehingga tahun 2017. Dalam peringkat pengumpulan data, keratan rentas di saluran sungai digunakan untuk mengenal pasti semua perubahan morfologi sungai pada tahun 2017. Kajian ini dijalankan untuk mengenal pasti ciri-ciri sungai faktor yang mempengaruhi hakisan berlaku dan perubahan luas keratan rentas. Selain itu, ia juga boleh digunakan untuk mengenal pasti masalah tersebut berdasarkan perubahan morfologi di lokasi tertentu. Malah boleh digunakan oleh pihak berkaitan untuk sebarang rujukan dalam penyelidikan mereka. Akhir sekali, pihak berkuasa tempatan boleh melaksanakan penyelesaian yang sesuai untuk mengurangkan risiko kejadian banjir.

ABSTRACT

Study on river morphology was conducted at Sungai Jemberau, Pahang. This study focused on changes of river morphology by determine the problems based on the changes of morphology at specific location and to interpret the responsible factors that caused the changes of river morphology. Several stages and approaches have been used. First, it involves the phase of planning studies and literature. Secondly, it is an approach used for data collection and information followed by the implementation of learning techniques. The study area is about the river in Tasik Chini catchment area. Expected results for morphology changes are collected and analysis from the Google Earth Maps. From the Google Earth Maps, the changes of river can be seen from year 2010 until year 2017. There are several stage records available in the study. Cross-section across river channel of the river is used to identify all changes of river morphology In year 2017. This study was carried out to identify the river characteristic of the factor affecting erosion occurs and the changes of cross sectional area . Besides that, it can be used to identify the problem based on the changes of morphology at specific location. Other than that, it can be used by other parties to make reference in their research. Lastly, local authorities can implemented appropriate solution to reduce the flood event's risks

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Rain water flowing down slopes comes together to form a stream flow. The space where a stream flow runs is a channel. A river is the general term for a channel and the water in it. The area supplying water into a channel is a drainage basin. The boundary between drainage basins is a water divide. A river system is composed of the main stream and many tributaries. However, there are many cases where several tributaries have similar length and flow, and it is difficult to determine which is the main stream. A drainage pattern is a plan of a river system. A river develops various landforms through channel processes.

Sediment is the nonpoint source pollutant originated from various sources and washed into our waterways by surface runoff . When land disturbing activities occur, soil particles are transported by surface water movement. Soil particles transported by water are often deposited in streams, lakes and wetlands that can changes the cross section, increase the bed load also changes the morphology. It also will make the quantity of aquatic life will reduce . The process of sediment deposition is also dependent on river discharge and speed of river flow. As such, the higher value of water velocity would result in higher amount of sediment.

1.2 Problem Statement

Tasik Chini is a fresh-water lake in the West-Malaysian state of Pahang. Though still enchanting, the lake has suffered and still suffers from activities outside the control of the local Orang Asli. Since the 1970s, erosion sediments (including chemicals) due to logging, heavy metal mining, and palm oil plantations enter the lake via its tributaries, troubling the once clear water of the lake. Through seasonal flushing, the lake seemed able to survive this first blow.

Several major floods happened in the most recent couple of decades in Kuantan, not just bringging extensive damage and inconvenience to the community or the economic, additionally the stream morphology itself. The sediment will reduce the function of the river and will cause flooding and brings along the sediments from upstream to downstream when receives heavy rainfall during monsoon time.

1.3 Objective of Study

The objectives of this study are:

1 To identify land used area in Tasik Chini and effect to river morphology by comparisons of satellite images in 6 years duration from 2011 to 2017

2 To study the morphology and river characteristics in Sungai Jemberau at Tasik Chini due to sedimentation and upland activities

1.4 Scope of Study

A study area for this project was located in Sg. Jemerau at Tasik Chini in district of Kuantan, Pahang, East Coast of Peninsular Malaysia, about 75km from University Malaysia Pahang (UMP) . This study will focused by using the availability of Google Earth data in between 6 years of the changes. The sample location was collected where the river morphology change.The collection of data also include the hydrological data of the river and the land used by the government. Besides that, this study also will concentrate on the measurement of river cross section on site and the land used by site investigation.

1.5 Significant of Study

The results of this study provide benefits to the Kuantan area and to the larger scientific community in Tasik Chini. Locally this study will give information to educators and help administrators actualize administration procedures to reduce sedimentation. Toward the end of this study, the waterway morphology and zone that contributes high sedimentation to the downstream of the selected river could be resolved and examine. Other than that, it can be used to identify the problem based on the changes of morphology at identified area.

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